U.S.S.N. 10/729,034

Claim Amendments

Please amend claims 1-7, and 11 as follows:

Please cancel claims 12-21 as follows:

Please add new claims 22-31 as follows:

Claims as Amended

1. (currently amended) A stacked integrated circuit (IC) MIM capacitor structure comprising:

a first MIM capacitor structure ~~formed~~ disposed in a first IMD layer comprising a first upper electrode and a first lower electrode ~~portions~~; and,

at least a second MIM capacitor structure arranged in stacked relationship in an overlying IMD layer comprising a second upper electrode and second lower electrode separate from said first upper and first lower electrodes to form an MIM capacitor stack;

wherein, the first lower electrode is arranged in common electrical signal communication comprising electrically communicating ~~metal filled~~ vias with the second upper electrode and the first upper electrode is arranged in common electrical signal communication with the second lower electrode to form said MIM capacitor stack in parallel electrical relationship.

2. (currently amended) The stacked MIM capacitor structure of claim 1, further comprising at least one additional MIM capacitor structure arranged in stacked relationship with respect to ~~the at least a second~~ an underlying MIM capacitor structure wherein respective upper and lower electrodes of respective odd and even numbered MIM capacitor structures in the MIM capacitor stack comprise a commonly communicating electrical interconnect structure in parallel electrical relationship.

3. (currently amended) The stacked MIM capacitor structure of claim 1, wherein the upper electrodes including electrically communicating ~~metal filled~~ vias of the respective MIM structures in the MIM capacitor stack comprise a substantially identical structure.

4. (currently amended) The stacked MIM capacitor structure of claim 1, wherein the lower electrodes including electrically communicating ~~metal-filled~~ vias of the respective MIM structures in the MIM capacitor stack comprise a substantially identical structure in alternating IMD layers.

5. (currently amended) The stacked MIM capacitor structure of claim 1, further comprising a capacitor dielectric sandwiched between the respective upper and lower electrodes, said capacitor dielectric selected from the group consisting of SiO_2, Si_3N_4, TiO_2, Ta_2O_5, ZrO_2, Y_2O_3, La_2O_5, and HfO_2.

6. (currently amended) The stacked MIM capacitor structure of claim 1, wherein the electrically communicating ~~metal-filled~~ vias comprise a metal selected from the group consisting of Al, Cu, W, and alloys thereof.

7. (currently amended) The stacked MIM capacitor structure of claim 1, wherein the electrically communicating ~~metal-filled~~ vias comprise a metal ~~selected from the group~~ consisting essentially of W.

8. (original) The stacked MIM capacitor structure of claim 1, wherein the respective upper and lower electrodes comprise a metal selected from the group consisting of Al, Cu, Ta, Ti, and nitrides thereof.

9. (original) The stacked MIM capacitor structure of claim 8, wherein the nitrides thereof comprise silicided nitrides.

10. (original) The stacked MIM capacitor structure of claim 1, further comprising bonding pads formed in electric signal communication with the uppermost MIM capacitor structure.

11. (currently amended) The stacked MIM capacitor structure of claim 1, wherein ~~the~~ a lowermost MIM capacitor structure is formed in an IMD layer greater than about a second IMD layer formed over ~~the~~ a semiconductor ~~wafer~~ substrate.

Claims 12-21 cancelled

22. (new) The stacked MIM capacitor structure of claim 1, wherein the first upper electrode is arranged in common electrical signal communication with the second lower electrode

according to at least one second electrically communicating via extending through said first IMD.

23. (new) The stacked MIM capacitor structure of claim 1, wherein a respective lower electrode of a respective MIM capacitor structure has a width dimension greater than a respective upper electrode.

24. (new) The stacked MIM capacitor structure of claim 1, wherein an upper and lower electrode of an uppermost MIM capacitor structure respectively electrically communicate with respective overlying bonding pads.

25. (new) The stacked MIM capacitor structure of claim 1, wherein said electrically communicating vias comprise vias extending through said first and second IMD layers.

26. (new) A stacked integrated circuit (IC) MIM capacitor structure comprising:

a first MIM capacitor structure disposed in a first IMD layer comprising a first upper electrode and a first lower electrode; and,

a second MIM capacitor structure arranged in stacked relationship in an overlying IMD layer comprising a second upper electrode and second lower electrode separate from said first upper and first lower electrode;

wherein, the first lower electrode is arranged in common electrical signal communication comprising electrically communicating vias with the second upper electrode and the first upper electrode is arranged in common electrical signal communication with the second lower electrode; and,

at least one additional MIM capacitor structure arranged in stacked relationship with respect to the second MIM capacitor structure to form an MIM capacitor stack wherein respective upper and lower electrodes of respective odd and even numbered MIM capacitor structures in the MIM capacitor stack comprise a commonly communicating electrical interconnect structure in parallel electrical relationship.

27. (new) The stacked MIM capacitor structure of claim 26, further comprising a first and second uppermost conductive portion comprises bonding pads disposed overlying an uppermost IMD layer disposed to respectively provide electrical signal communication to said respective commonly communicating electrical interconnect structures.

28. (new) The stacked MIM capacitor structure of claim 26, wherein the lower electrodes including electrically communicating vias of the respective MIM structures in the MIM capacitor stack comprise a substantially identical structure in alternating IMD layers.

29. (new) A stacked integrated circuit (IC) MIM capacitor structure comprising:

a first MIM capacitor structure disposed in a first IMD layer comprising a first upper electrode and a first lower electrode; and,

a least a second MIM capacitor structure arranged in

stacked relationship in an overlying IMD layer comprising a second upper electrode and second lower electrode separate from said first upper and first lower electrode to form an MIM capacitor stack;

wherein, the first lower electrode is arranged in common electrical signal communication comprising electrically communicating vias with the second upper electrode and the first upper electrode is arranged in common electrical signal communication with the second lower electrode; and,

wherein the lower electrodes including electrically communicating vias of the respective MIM structures in the MIM capacitor stack comprise a substantially identical structure in alternating IMD layers.

30. (new) The stacked MIM capacitor structure of claim 29, wherein respective upper and lower electrodes in said alternating IMD layers comprise a commonly communicating electrical interconnect structure in parallel electrical relationship.

31. (new) The stacked MIM capacitor structure of claim 29, further comprising a first and second uppermost conductive portion comprising bonding pads disposed overlying an uppermost IMD layer to respectively provide electrical signal communication to said respective commonly communicating electrical interconnect structures.